The background of the slide is a close-up, slightly blurred image of the American flag, showing the stars and stripes. In the lower right foreground, there is a small, detailed model of the Rock Island Arsenal, a large industrial and military complex with multiple towers and buildings.

*Presentation
to the*

**NETS Symposium 2006
Salt Lake City, Utah**

by

Jack Carr

***Economic and Environmental Analysis Branch
Rock Island District Corps of Engineers***

January 2006



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Event Studies – UMR Locks 27



- **The Locks and Dam 27 project is located at Mississippi River mile 185.5, between the confluence of the Missouri River (RM 195.5) and downtown St. Louis, Missouri (RM 179-180).**
- **The project has two parallel locks along the left descending bank: a 1200' x 110' main chamber and a 600' x 110' auxiliary chamber. The twin locks are situated at the southern end of an 8.4 mile long man made canal.**
- **The navigation pool is 27.8 miles long and covers 13,000 acres. The project was put into service in 1953.**



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UMR Locks 27 and Chain of Rocks Canal



One Team: Relevant, Ready, Responsive and Reliable



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UMR-IWW NAVIGATION SYSTEM



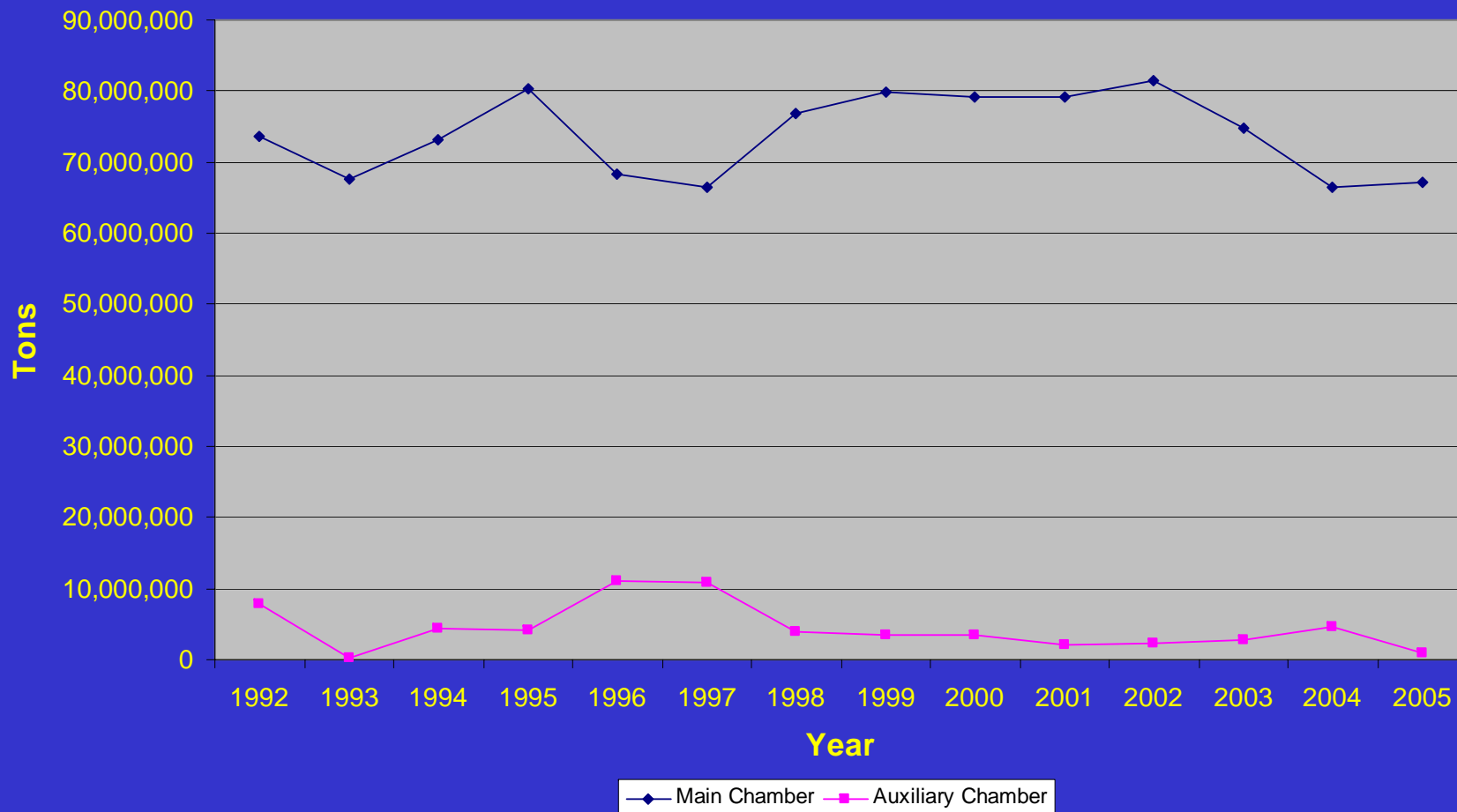
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Locks 27 Tonnage 1992-2005



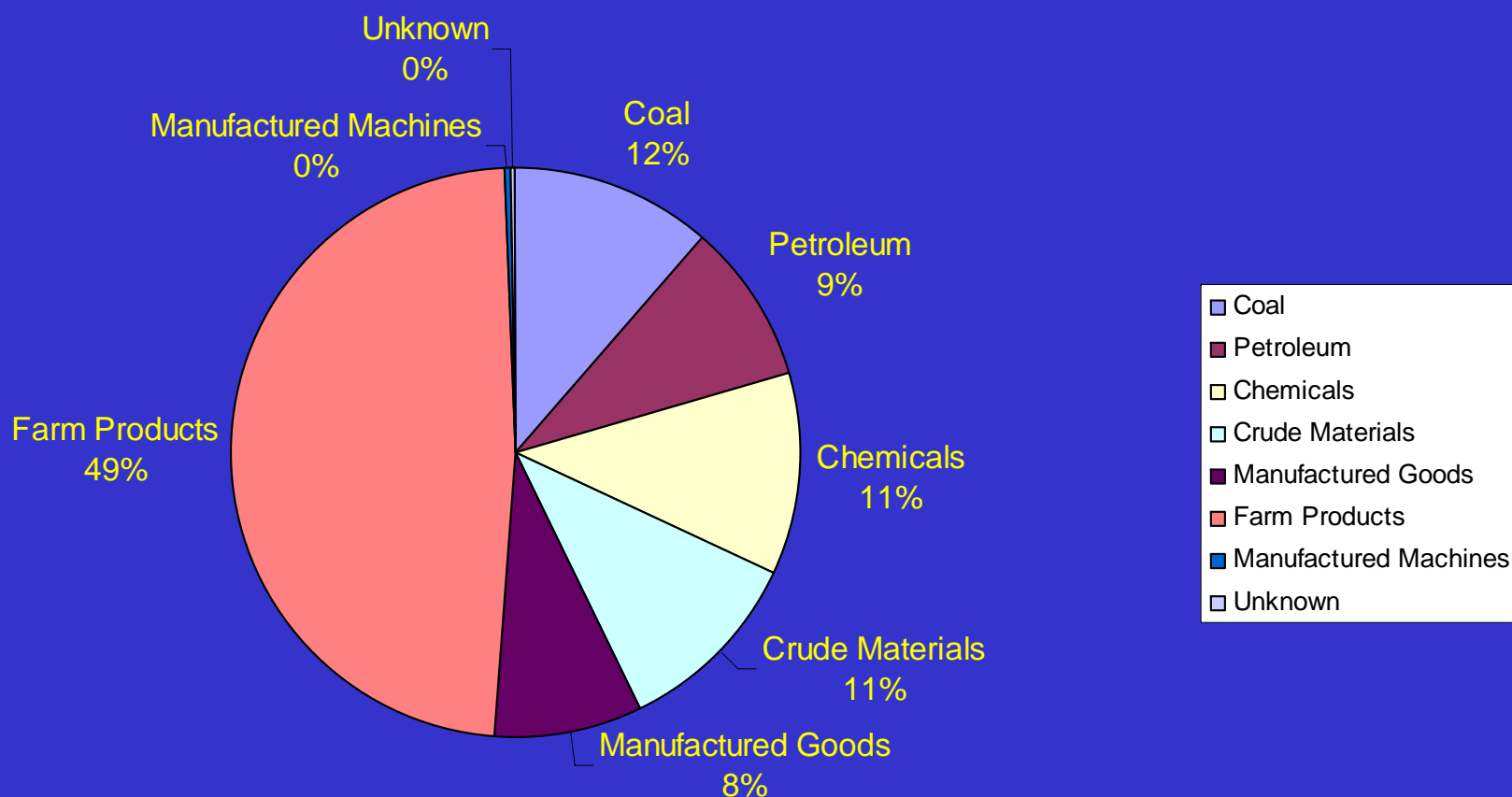
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Lock 27 Main Chamber in 2004 (66.5 million tons)



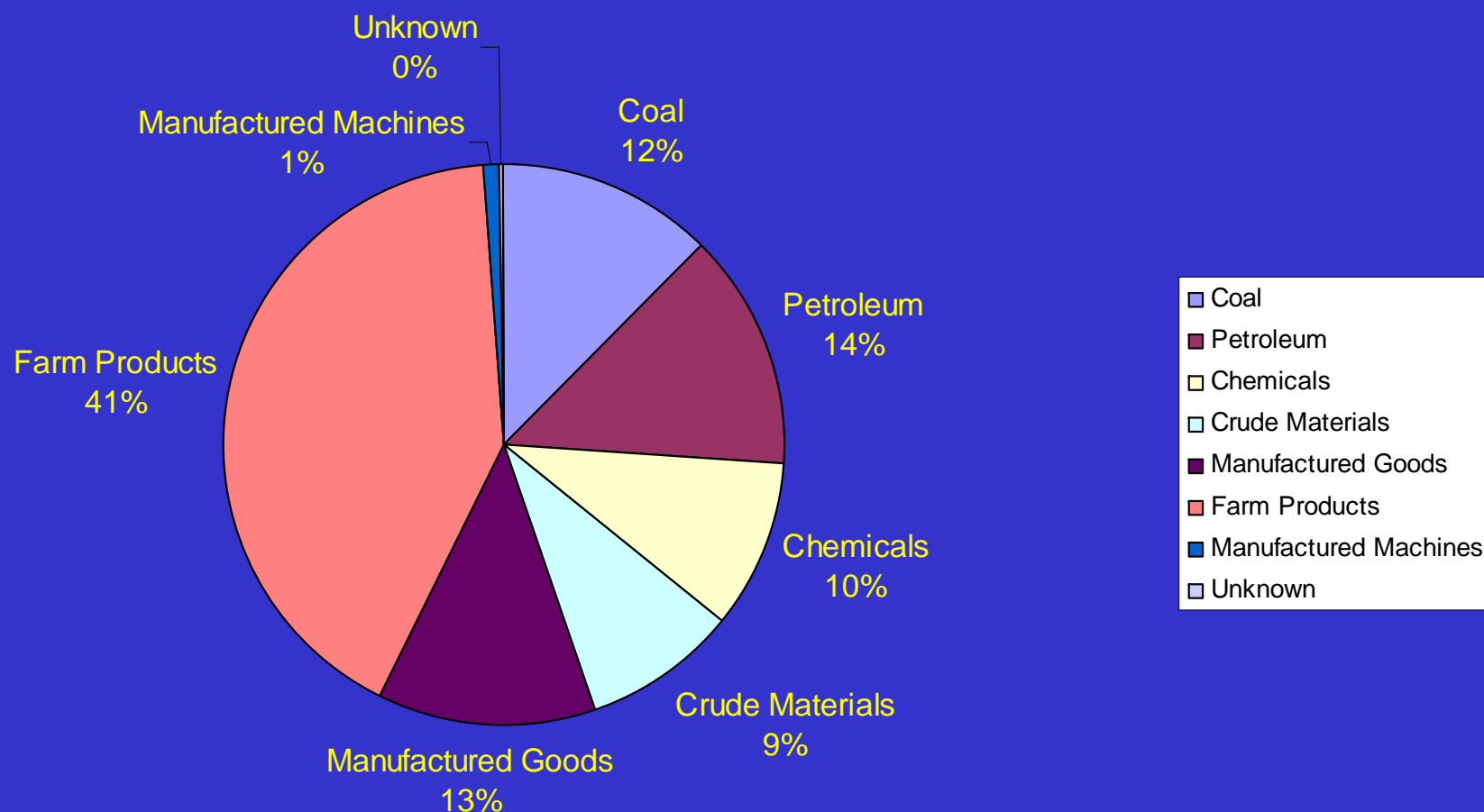
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Lock 27 Auxiliary Chamber in 2004 (4.7 million tons)



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Event Studies



- **26 July – 10 August 2004**
 - **Closure of main lock chamber at Lock 27, Mississippi River mile 185.0 for maintenance repairs. Auxiliary lock chamber remained open and available to river traffic during this period.**
- **February – March 2005**
 - **Surveys of shippers and carriers were conducted regarding impacts of this closure. Those surveyed included:**
 - ◆ **Shippers who moved more than 50,000 tons thru Locks 27 in 2003. A total of 206 companies were surveyed, which accounted for about 80 % of the total traffic.**
 - ◆ **Carriers with a frequency of 50 or more trips through Locks 27 in 2003, and carriers who transported more than 1,000 tons through Lock 27 in 2003. A total of 22 companies were surveyed .**



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Event Studies



- **Purpose of survey was to identify total costs incurred, and operational changes made by industry associated with the closure event.**
- **The overall response rate was 39 % for the shippers survey and 68 % for the carriers survey, which was largely the result of the follow up telephone campaign and contacts made with industry groups (MARC 2000 and the Waterway Council, Incorporated).**



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Event Studies



■ **Shippers**

- **Over 70 % reported no change in procedures was necessary. This was credited to advance notification and the auxiliary chamber remaining in service, minimizing disruption.**
- **About 10 % decided to stockpile product and wait for traffic to clear; about 6 % switched to all-overland mode for product delivery .**



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Event Studies



■ **Carriers**

- **All but one of the responding companies indicated that notification of the scheduled closure was adequate.**
- **Majority of the companies reacted to the closure by having towboats remain in queue, or by breaking tows to lock through the auxiliary lock.**
- **Several companies participated in industry self help.**



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- **Cost of closure**
 - **Shippers – Majority indicated no additional cost incurred.**
 - **Carriers – Estimated \$3.9 million cost of closure, mostly attributed to delay cost and lost revenue.**



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Analysis of OMNI Data



- **Because tows were compelled to lock thru the auxiliary lock, average processing times nearly doubled.**
- **Delays (amounting to 15,000 tow hours) greatly exceeded normal levels. Maximum delay to single tow was 104.6 hours.**
- **After the main chamber re-opened, it took about 94 hours for the queue to dissipate.**
- **The number of tow arrivals per day increased during the period following announcement of the closure, and decreased during the closure.**



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Future Surveys



- **A Planned Replacement of gate operating machinery is scheduled for the Lock 27 main and auxiliary chambers.**
- **The auxiliary chamber was closed for eight weeks from 3 October- 27 November 2005, and the main lock chamber will be closed for seven weeks between 3 January and 27 February 2006.**



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Schedule for Future Surveys



- **April – June 2006**
 - **Mail Shippers and Carriers surveys and do a telephone follow up with the companies contacted.**
 - **Analysis of OMNI data relative to main and auxiliary lock closure at Lock 27.**
 - **Report including write-up on both the 2005 and 2006 surveys will be available in June 2006.**



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UMR Locks 27 and Chain of Rocks Canal



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